CLAIMS

1   1.   A method for generating a lun map associated with an initiator for use with a stor-

2   age system in a network environment, the method comprising the steps of:

3   logging into the storage system by the initiator;

4   identifying a set of luns that the initiator may access;

5   creating a lun map associated with the initiator; and

6   returning a set of accessible luns to the initiator.

1   2.   The method of claim 1 wherein the lun map further comprises a set of ordered

2   pairs mapping virtual luns to a physical luns.

1   3.   The method of claim 2 wherein a virtual lun is a lun number exported to the ini-

2   tiator; and

3   wherein the physical lun is a lun number associated with the storage system.

1   4.   The method of claim 1 wherein the step of identifying a set of luns that the initia-

2   tor may access further comprises the steps of:

3   (a) selecting a lun data structure;

4   (b) searching through a list of initiator identifiers in the lun data structure to iden-

5   tify whether the initiator may access the selected lun; and

6   repeating steps (a) and (b) for each lun data object assoiated with a given storage

7   system.

1   5.   The method of claim 4 wherein the initiator identifier comprises a world wide

2   name.

1   6.   The method of claim 1 wherein the network environment comprises a Fibre

2   Channel switching network.

1   7.   The method of claim 1 wherein the storage system comprises a multi-protocol

2   storage appliance.

1   8.   The method of claim 1 wherein the step of identifying the set of luns comprises

2   the step of accessing a set of lun data structures associated with the storage system.

1   9.   A method for generating a lun map associated with an initiator for use with a stor-

2   age system in a network environment, the method comprising the steps of:

3   (a) logging into the storage system by the initiator;

4   (b) selecting a lun data structure;

5   (c) searching for a list of identifiers in the lun data structure to identify whether

6   the initiator may access the selected lun;

7   (d) repeating steps (b) and (c) for each lun data structure associated with the stor-

8   age system;

9   (e) creating a lun map using the identified luns to be associated with the initiator,

10   the lun map comprising a set of ordered pairs mapping virtual luns to physical luns; and

11   (f) returning a set of accessible luns to the initiator.

1   10.   The method of claim 9 when a virtual lun is a lun number exported to the initiator;

2   and

3   wherein a physical lun is a lun number associated with the storage system.

1   11.   The method of claim 10 wherein the set of accessible luns comprises a set of vir-

2   tual luns to be exported to the initiator.

1   12.   A method for performing a lun masking operation associated with an initiator for

2   use with a storage system in a network environment, the method comprising the steps of:

3   sending, by the initiator, a command directed to a lun associated with a storage

4   system;

5   accessing, by the storage system, a lun map associated with the initiator;

6   mapping the lun value sent by the initiator to a lun value associated with the stor-

7 age system using the accessed lun map;

8   returning, in response to a failure of the mapping operation, an error message; and

9   performing, in response to a success of the mapping operation, the requested

10 command on the specified lun.

1 13.   The method of claim 12 wherein the lun map is contained within an initiator data

2 structure associated with the storage system.

1 14.   The method of claim 12 wherein the lun map further comprises a set of ordered

2 pairs mapping a virtual lun to a physical lun.

1 15.   The method of claim 14 wherein a virtual lun is a lun number exported to the ini-

2 tiator; and

3   where a physical lun is a lun number associated with the storage system.

1 16.   The method of claim 12 wherein the step of mapping the lun value sent by the

2 initiator to a lun value associated with the storage system using the lun map further com-

3 prises the steps of:

4   identifying an entry of the lun map associated with the lun value sent by the ini-

5 tiator;

6   selecting an associated entry associated with the identified entry, the associated

7 entry storing the lun value associated with the storage system.

1 17.   A method for performing a lun masking operation associated with an initiator for

2 use with a storage system in a network environment, the method comprising the steps of:

3   sending, by an initiator, a command directed to a lun associated with a storage

4 system;

5   accessing, by the storage system, a lun map associated with the initiator, the lun

6 map being contained within an initiator data structure associated with the storage system

7   and wherein the lun map further comprises a set of ordered pairs mapping a virtual lun to

8   a physical lun;

9   mapping the lun value sent by the initiator to a lun value sent by the initiator to a

10   lun value associated with the storage system using the accessed lun map, whereby the lun

11   value sent by the initiator comprises a virtual lun and the lun value associated with the

12   storage system comprises a physical lun;

13   returning, in response for a failure of the mapping operation common error mes-

14   sage; and

15   performing, in response to the success of the mapping operation, the requested

16   command on the specified lun value associated with the storage system.

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1   18.   A storage system for use in a networking environment, the storage system com-

2   prising:

3   one or more luns that may be selectively exported to one or more clients of the

4   storage system;

5   one or more initiator data structures, each of the one or more data structures asso-

6   ciated with each of the one or more clients of the storage system, each of the initiator data

7   structures including a lun map; and

8   a small computer system interface target module adapted to, upon receipt of a

9   command directed to one of the one or more luns from one of the one or more clients,

10   access the lun map to determine if the client may access the specified lun.

1   19.   The storage system of claim 18 wherein the one or more luns comprise virtual

2   disks.

1   20.   The storage system of claim 18 wherein each of the initiator data structures are

2   generated by the small computer system interface target module upon login by an associ-

3   ated initiator.

1   21.   A computer readable medium, executing on a storage system, for generating a lun

2   map associated with an initiator, the computer readable medium including program in-

3   structions for performing the steps of:

4   identifying a set of luns that the initiator may access by accessing a set of lun data

5   structures associated with the storage system;

6   creating a lun map associated with the initiator; and

7   returning a set of accessible luns to the initiator.

1   22.   A storage system for use in a network environment, the storage system compris-

2   ing:

3   means for selectively exporting one or more luns to one or more clients of the

4   storage system;

5   one or more initiator data structures, each of the one or more data structures asso-

6   ciated with each of the one or more clients of the storage system, each of the initiator data

7   structures including a lun map; and

8   means for determining if a client may access a specified lun.